Measure It Out

Sort measurement problems by their math structure.

MA.3.M.1.2 "Solve real-world problems involving any of the four operations with whole-number lengths, masses, weights, temperatures or liquid volumes."

NAME _____ DATE _____

COMBINE AMOUNTS

Use this when amounts are joined, compared, or taken away. These problems use addition or subtraction.

A 15-inch board has 6 inches removed. Find its new length.

EQUAL GROUPS

Use this when equal-size groups are put together or shared equally. These problems use multiplication or division.

Three cartons contain 4 quarts of soup each. What volume of soup is in the cartons?

1 SORT

8 items

Part 1: Read each problem and circle COMBINE or GROUPS, then Part 2: choose two items and explain the clue that helped you sort each one.

1.	A jug has 9 liters of water. Four liters are used. How many liters remain?	COMBINE	GROUPS
2.	Four bags each hold 6 kilograms of rice. What is the total mass?	COMBINE	GROUPS
3.	Eighteen meters of rope are cut into 3 equal pieces. How long is each piece?	COMBINE	GROUPS
4.	A baby weighs 8 kilograms. Her brother weighs 5 kilograms more. What does her brother weigh?	COMBINE	GROUPS
5.	A tank holds 20 gallons. It now has 13 gallons. How many gallons were poured out?	COMBINE	GROUPS
6.	Seven identical cans hold 2 liters each. How many liters do they hold altogether?	COMBINE	GROUPS
7.	A thermometer reads 12°C in the morning and 17°C in the afternoon. How many degrees warmer is the afternoon?	COMBINE	GROUPS
8.	Twenty-four ounces of soap are poured equally into 4 bottles. How many ounces go in each bottle?	COMBINE	GROUPS

2 PROVE IT

Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

Write one new COMBINE measurement problem and one new GROUPS measurement problem.

COMBINE _____

GROUPS _____

CHALLENGE

Write and solve a two-step measurement problem that first uses GROUPS and then uses COMBINE.

ANSWER KEY

Measure It Out

GRADE 3 · MA.3.M.1.2

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	A jug has 9 liters of water. Four liters are used. How many liters remain?	**COMBINE**	A quantity is taken away, so the problem uses subtraction.
2	Four bags each hold 6 kilograms of rice. What is the total mass?	**GROUPS**	There are four equal groups of 6 kilograms, so the problem uses multiplication.
3	Eighteen meters of rope are cut into 3 equal pieces. How long is each piece?	**GROUPS**	One total length is shared into equal pieces, so the problem uses division.
4	A baby weighs 8 kilograms. Her brother weighs 5 kilograms more. What does her brother weigh?	**COMBINE**	The two masses are joined by adding 5 kilograms.
5	A tank holds 20 gallons. It now has 13 gallons. How many gallons were poured out?	**COMBINE**	The problem compares the full amount and the amount left, so it uses subtraction.
6	Seven identical cans hold 2 liters each. How many liters do they hold altogether?	**GROUPS**	There are seven equal groups of 2 liters, so the problem uses multiplication.
7	A thermometer reads 12°C in the morning and 17°C in the afternoon. How many degrees warmer is the afternoon?	**COMBINE**	The problem compares two temperatures, so it uses subtraction.
8	Twenty-four ounces of soap are poured equally into 4 bottles. How many ounces go in each bottle?	**GROUPS**	One total volume is shared equally among four bottles, so the problem uses division.

PART 2 · PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **COMBINE**: A 10-inch candle burns 3 inches. How many inches are left?
- **GROUPS**: Three cartons hold 8 ounces of milk each. How many ounces are there?

Challenge: Five pitchers hold 4 cups of lemonade each. Then 3 cups spill. How many cups remain? $5 \times 4 = 20$, and $20 - 3 = 17$ cups remain.

Items 1, 4, 5, and 7 are COMBINE. Items 2, 3, 6, and 8 are GROUPS; for Part 2, accept explanations that identify taking away, comparing, equal groups, or equal sharing.